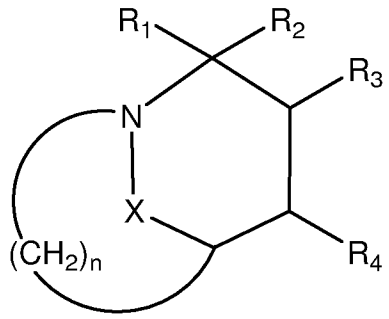
AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

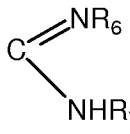
LISTING OF CLAIMS

1. (currently amended) A compound of the formula:



(I)

in which either:

a) R_1 is a radical selected from the group consisting of hydrogen, COOH, COOR, CN, $(CH_2)_{n'}R_5$, $CONR_6R_7$ and  ;

R is selected from the group consisting of an alkyl radical containing from 1 to 6 carbon atoms, optionally substituted with one or more halogen atoms or with a pyridyl radical; a $-CH_2$-alkenyl radical containing in total from 3 to 9 carbon atoms; a (poly)alkoxyalkyl group containing 1 to 4 oxygen atoms and 3 to 10 carbon atoms; an aryl radical containing from 6 to 10 carbon atoms or an aralkyl radical containing from 7 to 11 carbon atoms, the aryl or aralkyl radical being optionally substituted with a radical

selected from the group consisting of OH, NH_2, NO_2, alkyl containing from 1 to 6 carbon atoms, alkoxy containing from 1 to 6 carbon atoms and one or more halogen atoms;

R_5 is selected from the group consisting of COOH, CN, OH, NH_2, CO-NR_6R_7, COOR and OR radicals, R being as defined above,

R_6 and R_7 are individually selected from the group consisting of hydrogen, an alkyl radical containing from 1 to 6 carbon atoms, an alkoxy radical containing from 1 to 6 carbon atoms, an aryl radical containing from 6 to 10 carbon atoms, an aralkyl radical containing from 7 to 11 carbon atoms and an alkyl radical containing from 1 to 6 carbon atoms which is substituted with a pyridyl radical;

n' is equal to 1 or 2,

R_3 and R_4, together with the carbons to which they are attached, form a phenyl or a 5- or 6-membered aromatic heterocycle containing from 1 to 4 heteroatoms selected from nitrogen, oxygen and sulfur, which is substituted with one or more R' groups, R' being a radical selected from the group consisting of:

$-(O)_a-(CH_2)_b-(O)_a-CONR_6R_7$, $-(O)_a-(CH_2)_b-OSO_3H$, $-(O)_a-(CH_2)_b-SO_3H$,

$-(O)_a-SO_2R$, $-(O)_a-SO_2-CHal_3$, $-(O)_a-(CH_2)_b-NR_6R_7$,

$-(O)_a-(CH_2)_b$-NH-COOR, $-(CH_2)_b$-COOH, $-(CH_2)_b$-COOR, -OR", OH,

$-(CH_2)_b$-phenyl,

$-O-(CH_2)_2-O-CH_3$, $-O-CH_2$-(2,2-dimethyl-1,3-dioxolan-4-yl), -CO-NH phenyl,

$-(CH_2)_b$-5- or 6-membered aromatic heterocycle containing from 1 to 4 heteroatoms selected from nitrogen, oxygen and sulfur, each of said phenyl and said heterocycle being optionally substituted with one or more substituents selected from halogen, alkyl containing from 1 to 6 carbon atoms, alkoxy containing from 1 to 6 carbon atoms and CF_3,

R, R_6 and R_7 being as defined above,

R" being selected from alkyl radicals containing from 1 to 6 carbon atoms substituted with one or more radicals selected from hydroxy, protected hydroxy, oxo, halogen and cyano radicals,

a being equal to 0 or 1 and b being an integer from 0 to 6,

provided that, when R' is OH, R_1 is $CONR_6R_7$ in which one of R_6 and R_7 is an alkoxy containing from 1 to 6 carbon atoms; or

b) R_4 is hydrogen or $(CH_2)_{n'1}R_5$, wherein n'_1, is 0, 1 or 2 and R_5 is as defined above,

and R_1 and R_3, together with the carbons to which they are attached, form a substituted phenyl or heterocycle, as defined above;

and, in both cases a) and b),

R_2 is selected from the group consisting of hydrogen, halogen, R, $S(O)_mR$, OR, NHCOR, NHCOOR and $NHSO_2R$, R being as defined above and m being 0, 1 or 2,

X is a divalent group -C(O)-B- linked to the nitrogen atom by the carbon atom,

B is a divalent group selected from 1) $-NR_8-(CH_2)_{n"}-$ ~~and 2) $-NR_8-O-$~~ linked to the carbonyl by the nitrogen atom, n" is 0 ~~or 1~~ and R_8 is a radical selected from the group consisting of hydrogen, OH, R, OR, Y, OY, Y_1, OY_1, Y_2, OY_2, Y_3, $O-CH_2-CH_2-S(O-)_m-R$, SiRaRbRc and OSiRaRbRc, wherein each of Ra, Rb and Rc is a linear or branched alkyl containing from 1 to 6 carbon atoms or an aryl containing from 6 to 10 carbon atoms, and R and m are as defined above;

Y is selected from the group consisting of COH, COR, COOR, $CONH_2$, CONHR, CONHOH, $CONHSO_2R$, CH_2COOH, CH_2COOR, CHF-COOH, CHF-COOR, CF_2-COOH, CF_2-COOR, CN, CH_2CN, $CH_2CONHOH$, $CH_2CONHCN$, CH_2tetrazole, protected

CH_2tetrazole, CH_2SO_3H, CH_2SO_2R, $CH_2PO(OR)_2$, $CH_2PO(OR)(OH)$, $CH_2PO(R)(OH)$ and $CH_2PO(OH)_2$;

Y_1 is selected from the group consisting of SO_2R, SO_2NHCOH, SO_2NHCOR, $SO_2NHCOOR$, $SO_2NHCONHR$, $SO_2NHCONH_2$ and SO_3H;

Y_2 is selected from the group consisting of $PO(OH)_2$, $PO(OR)_2$, $PO(OH)(OR)$ and $PO(OH)(R)$;

Y_3 is selected from the group consisting of tetrazole, tetrazole substituted with R, squarate, NH or NRtetrazole, NH or NRtetrazole substituted with R, $NHSO_2R$, $NRSO_2R$, CH_2tetrazole and CH_2tetrazole substituted with R, R being as defined above,

and n is 1, or one of its salts with a base or an acid.

2. (cancelled).

3. (original) The compound as claimed in claim 1, wherein R_2 is a hydrogen atom.

4. (original) The compound as claimed in claim 1, wherein R_3 and R_4 together form a substituted phenyl or a substituted heterocycle.

5. (previously presented) The compound as claimed in claim 1, wherein R_3 and R_4 together form a substituted phenyl or a substituted heterocycle, wherein the substituted heterocycle is a substituted thienyl or a pyrazolyl substituted with one or more of the substituents therefore as defined in claim 1.

6. (original) The compound as claimed in claim 1, wherein R_1 is selected from the group consisting of hydrogen, $COOCH_3$, $COOC_2H_5$, $CONH_2$, $CONHCH_3$ and $CONHOCH_3$.

7. (cancelled).

8. (previously presented) The compound as claimed in claim 1, wherein R_8 is selected from OY and OY_1, where Y is selected from the group consisting of CH_2COOH, CH_2COOR, CHF-COOH, CHF-COOR, CF_2-COOH, CF_2-COOR, CN, CH_2CN, $CH_2CONHOH$, $CH_2CONHCN$, CH_2tetrazole, protected CH_2tetrazole, CH_2SO_3H, CH_2SO_2R, $CH_2PO(OR)_2$, $CH_2PO(OR)(OH)$, $CH_2PO(R)(OH)$ and $CH_2PO(OH)_2$ or Y_1 is selected from the group consisting of SO_2R, SO_2NHCOR, $SO_2NHCOOR$, $SO_2NHCONHR$ and SO_3H, R being as defined in claim 1.

9. (original) The compound as claimed in claim 1, wherein R' is selected from the group consisting of -O-CH_2-CHOH-CH_2OH, -CH_2-CH_2-NH_2, -CH_2-$COOC_2H_5$, -CH_2-CH_2-phenyl, -CH_2-phenyl, -O-CO-NHphenyl, -O-CO-NHC_2H_5, -O-SO_2-CF_3, -O-$(CH_2)_2$-O-SO_3H, -O-$(CH_2)_2$-O-CH_3, -CH_2-COOH, -O-CH_2-(2,2-dimethyl-1,3-dioxolan-4-yl), -CO-NH_2, -CO-NH phenyl, -CH_2-(p-OCH_3 phenyl) and phenyl optionally substituted with a substituent selected from CH_3, C_2H_5, F and CF_3.

10. (currently amended) A compound of formula (I), as defined in claim 1, selected from the group consisting of:

- the triethylammonium salt of ~~5,6-dihydro-6-oxo-N^2-phenyl-5-(sulfoxy)-4*H*-4,7-methanopyrazolo[3,4-e][1,3]diazepine-2,8(8*H*)-dicarboxamide~~ 5,6-dihydro-6-oxo-N^2-phenyl-5-(sulfoxy)-4*H*-4,7-methanopyrazolo[3,4-e][1,3]diazepine-2,8(8*H*)dicarboxamide,
- the sodium salt of 4,5,6,8-tetrahydro-6-oxo-5-(sulfoxy)-1*H*-4,7-methanopyrazolo[3,4-e][1,3]diazepine-1-carboxamide,
- the sodium salt of ~~1,4,5,8-tetrahydro-1-[(4-methoxyphenyl)methyl]-5-(sulfoxy)-6*H*-4,7-methano-pyrazolo[3,4-e][1,3]diazepin-6-one~~ 1,4,5,8-tetrahydro-1-[(4-methoxyphenyl)methyl]-5-(sulfoxy)-6*H*-4,7-methanopyrazolo[3,4-e][1,3]diazepin-6-one,
- the sodium salt of trans-4,5,6,8-tetrahydro-2-(2-methylphenyl)-6-oxo-5-(sulfoxy)-4,7-methano-7*H*-thieno[2,3-e][1,3]diazepine-8-carboxamide,
- the sodium salt of trans-4,5,6,8-tetrahydro-6-oxo-5-(sulfoxy)-2-[2-(trifluoromethyl)phenyl]-4,7-methano-7*H*-thieno[2,3-e][1,3]diazepine-8-carboxamide,
- the sodium salt of trans-2-(2-ethylphenyl)-4,5,6,8-tetrahydro-6-oxo-5-(sulfoxy)-4,7-methano-7*H*-thieno[2,3-e][1,3]diazepine-8-carboxamide,
- the sodium salt of trans-8-(2,3-dihydroxypropoxy)-1,2,3,5-tetrahydro-3-oxo-2-(sulfoxy)-1,4-methano-4*H*-2,4-benzodiazepine-5-carboxamide,
- the sodium salt of ethyl trans-3-(4-fluorophenyl)-4,6,7,8-tetrahydro-6-oxo-7-(sulfoxy)-5,8-methano-5*H*-thieno[2,3-e][1,3]diazepine-4-carboxylate,

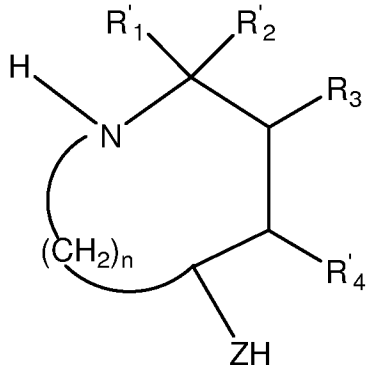
- the sodium salt of trans-2,5,6,8-tetrahydro-6-oxo-2-phenyl-5-(sulfoxy)-4*H*-4,7-methanopyrazolo[3,4-e][1,3]diazepine-8-carboxamide,
- the sodium salt of 1,4,5,8-tetrahydro-1-phenyl-5-(sulfoxy)-6*H*-4,7-methanopyrazolo[3,4-e][1,3]diazepin-6-one,
- the sodium salt of trans-4,5,6,8-tetrahydro-6-oxo-1-phenyl-5-(sulfoxy)-1*H*-4,7-methanopyrazolo[3,4-e][1,3] diazepine-8-carboxamide,
- the triethylammonium salt of methyl trans-2,5,6,8-tetrahydro-6-oxo-2-(phenylmethyl)-5-(sulfoxy)-4*H*-4,7-methanopyrazolo[3,4-e][1,3] diazepine-8-carboxylate,
- the triethylammonium salt of methyl trans-4,5,6,8-tetrahydro-6-oxo-1-(2-phenylethyl)-5-(sulfoxy)-1*H*-4,7-methanopyrazolo[3,4-e][1,3] diazepine-8-carboxylate,
- the triethylammonium salt of ethyl trans-4,5,6,8-tetrahydro-8-(methoxycarbonyl)-6-oxo-5-(sulfoxy)-1*H*-4,7-methanopyrazolo [3,4-e][1,3] diazepine-1-acetate,
- the triethylammonium salt of ~~ethyl trans-5,6-dihydro-8-(methoxycarbonyl)-6-oxo-5-(sulfoxy)-4*H*-4,7-methanopyrazolo [3,4-e][1,3]diazepine-2(8H)-acetate~~ ethyl trans-5,6-dihydro-8-(methoxycarbonyl)-6-oxo-5-(sulfoxy)-4*H*-4,7-methanopyrazolo [3,4-e][1,3]diazepine-2(8*H*)-acetate,
- the di(triethylammonium) salt of trans-5,6-dihydro-8-(methoxycarbonyl)-6-oxo-5-sulfoxy-4*H*-4,7-methanopyrazolo [3,4-e][1,3]diazepine-2(8*H*)acetic acid,

- the pyridinium salt of methyl trans-1-(aminocarbonyl)-4,5,6,8-tetrahydro-6-oxo-5-(sulfoxy)-1*H*-4,7-methanopyrazolo[3,4-e][1,3]diazepine-8-carboxylate,
- the pyridinium salt of methyl trans-2-(aminocarbonyl)-2,5,6,8-tetrahydro-6-oxo-5-(sulfoxy)-4*H*-4, 7-methanopyrazolo[3,4-e][1,3]diazepine-8-carboxylate,
- the sodium salt of methyl trans-2-(4-fluorophenyl)-4,5,6,8-tetrahydro-6-oxo-5-(sulfoxy)-4,7-methano-7*H*-thieno[2,3-e][1,3]diazepine-8-carboxylate,
- the sodium salt of ~~methyl trans-2(aminocarbonyl)-4,5,6,8-tetrahydro-6-oxo-5-(sulfoxy)-4,7-methano-7-*H*-thieno[2,3-e][1,3]diazepine-8-carboxylate~~ methyl trans-2(aminocarbonyl)-4,5,6,8-tetrahydro-6-oxo-5-(sulfoxy)-4,7-methano-7*H*-thieno[2,3-e][1,3]diazepine-8-carboxylate,
- the sodium salt of ethyl trans-1,2,3,5-tetrahydro-3-oxo-9-[[(phenylamino)carbonyl]oxy]-2-(sulfoxy)-1,4-methano-4*H*-2,4-benzodiazepine-5-carboxylate,
- the sodium salt of trans-1,2,3,5-tetrahydro-N-methoxy-8-[(2-methoxyethoxy)methoxy]-3-oxo-2-(sulfoxy)-1,4-methano-4*H*-2,4-benzodiazepine-5-carboxamide,
- the sodium salt of ethyl trans-1,2,3,5-tetrahydro-3-oxo-8-[[(phenylamino)carbonyl]oxy]-2-(sulfoxy)-1,4-methano-4*H*-2,4-benzodiazepine-5-carboxylate,
- the sodium salt of ethyl trans-8-[[(ethylamino)carbonyl]oxy]-1,2,3,5-tetrahydro-3-oxo-2-(sulfoxy)-1,4-methano-4*H*-2,4-benzodiazepine-5-carboxylate,

- the sodium salt of ethyl trans-1,2,3,5-tetrahydro-3-oxo-2-(sulfoxy)-8-[[(trifluoromethyl)sulfonyl]oxy]-1,4-methano-4*H*-2,4-benzodiazepine-5-carboxylate,
- the disodium salt of trans-1,2,3,5-tetrahydro-3-oxo-2-(sulfoxy)-8-[2-(sulfoxy)ethoxy]-1,4-methano-4*H*-2,4-benzodiazepine-5-carboxamide,
- the sodium salt of trans-8-[(2,2-dimethyl-1,3-dioxolan-4-yl)methoxy]-1,2,3,5-tetrahydro-3-oxo-2-(sulfoxy)-1,4-methano-4*H*-2,4-benzodiazepine-5-carboxamide, and
- the triethylammonium salt of ~~methyl trans-2,5,6,8-tetrahydro-6-oxo-(2-phenylethyl)-5-(sulfoxy)-4*H*-4,7-methanopyrazolo[3,4-e][1,3]diazepine-8-carboxylate~~ methyl trans-2,5,6,8-tetrahydro-6-oxo-(2-phenylethyl)-5-(sulfoxy)-4*H*-4,7-methanopyrazolo[3,4-*e*][1,3]diazepine-8-carboxylate.

11. (currently amended) A method for preparing a compound as claimed in claim 1, which comprises:

a) reacting a carbonylating agent, where appropriate in the presence of a base, with a compound of formula (II):



(II)

in which either:

a) R'_1 is selected from the group consisting of H, CN, protected COOH, $COOR_9$, $(CH_2)_{n'}R'_5$, $CONR_6R_7$

R_9 is selected from the group consisting of alkyl containing from 1 to 6 carbon atoms, optionally substituted with one or more halogen atoms or with a pyridyl; $-CH_2-$alkenyl containing in total from 3 to 9 carbon atoms; aryl containing from 6 to 10 carbon atoms or aralkyl containing from 7 to 11 carbon atoms, the aryl or aralkyl being optionally substituted with a substituent selected from the group consisting of NO_2, protected OH, protected NH_2, alkyl containing from 1 to 6 carbon atoms, alkoxy containing from 1 to 6 carbon atoms and one or more halogen atoms;

R'_5 is selected from the group consisting of protected OH, CN, protected NH_2, $CO-NR_6R_7$, protected COOH, $COOR_9$, and OR_9, R_9 being as defined above; n', R_6 and R_7 are as defined in claim 1;

R_3 and R'_4, together with the carbons to which they are attached, form a phenyl or a 5- or 6-membered aromatic heterocycle containing from 1 to 4 heteroatoms selected from nitrogen, oxygen and sulfur, and optionally substituted with one or more R_{10} groups, R_{10} being selected from the group consisting of hydrogen; alkyl containing from 1 to 6 carbon atoms substituted with one or more substituents selected from hydroxy, oxo, halogen and cyano; alkenyl containing from 2 to 6 carbon atoms; halo; protected OH; -OR; and OR"; wherein R" is as defined in Claim 1, $-(CH_2)_b$-phenyl and $-(CH_2)_b$-heterocycle, each of said phenyl and heterocycle being optionally substituted, as defined in claim 1; or

b) R'_4 represents a hydrogen atom or $(CH_2)_{n'_1}R'_5$, n'_1 being 0, 1 or 2 and R'_5 being as defined above,

and R'_1 and R_3 together form an optionally substituted phenyl or heterocycle as defined above for R_3 and R'_4;

and, in both cases a) and b),

R'_2 is selected from the group consisting of hydrogen, halogen, R_9, $S(O)_mR_9$, OR_9, NHCOH, $NHCOR_9$, $NHCOOR_9$ and $NHSO_2R_9$, R_9 being as defined above and m being as defined in claim 1,

n being as defined in claim 1;

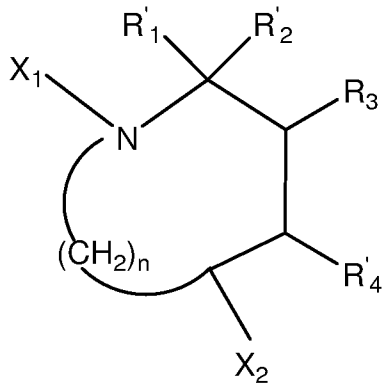
ZH is selected from the group consisting of HNR'_8-$(CH_2)_{n''}$- ~~and HNR'_8-O-~~, n" being as defined in claim 1 and R'_8 being selected from the group consisting of hydrogen, R_9, protected OH, OR_9, Y', OY', Y'_1, OY'_1, Y'_2, OY'_2, Y'_3, O-CH_2-CH_2-$S(O)_m$-R", SiRaRbRc and OSiRaRbRc, each of Ra, Rb and Rc individually being a linear or branched alkyl containing from 1 to 6 carbon atoms or an aryl containing from 6 to 10 carbon atoms, R_9 and m being as defined above,

Y' is selected from the group consisting of COH, COR_9, $COOR_9$, $CONH_2$, $CONHR_9$, $CONHSO_2R_9$, CH_2COOR_9, protected CH_2tetrazole, $CH_2SO_2R_9$, $CH_2PO(OR_9)_2$, protected CONHOH, protected CH_2COOH, protected $CH_2CONHOH$, protected CH_2SO_3, protected $CH_2PO(OR)(OH)$, protected $CH_2PO(R)(OH)$ and protected $CH_2PO(OH)_2$,

Y'_1 is selected from the group consisting of SO_2R_9, SO_2NHCOH, SO_2NHCOR_9, $SO_2NHCOOR_9$, $SO_2NHCONH_2$, $SO_2NHCONHR_9$ and protected SO_3H,

Y'_2 is selected from the group consisting of $PO(OR_9)_2$, protected $PO(OH)_2$, protected PO(OH)(OR) and protected PO(OH)(R),

Y'_3 is selected from the group consisting of protected tetrazole, tetrazole substituted with R_9, protected squarate, protected NHtetrazole, protected NR_9tetrazole, protected NH, NR_9tetrazole substituted with R_9, $NHSO_2R_9$ and NSO_2R_9, R_9 being as defined above, and n is as defined in claim 1; in order to obtain an intermediate compound of formula (III):



(III)

in which: R'_1, R'_2, R_3, R'_4 and n have the same meanings as above and either X_1 is hydrogen and X_2 is -Z-CO-X_3, X_3 representing the residue of the carbonylating agent, or X_2 is -ZH and X_1 is CO-X_3, X_3 being as defined above; and

b) cyclizing said intermediate in the presence of a base; and

c) where appropriate, step a) is preceded and/or step b) is followed by one or more of the following reactions, in an appropriate order:

- protection of the reactive functional groups;
- deprotection of the reactive functional groups;
- esterification;
- saponification;
- sulfation;

- phosphatization;
- amidation;
- acylation;
- sulfonylation;
- alkylation;
- formation of a urea group;
- reduction of carboxylic acids;
- reduction of ketones and aldehydes to alcohols;
- salification;
- ion exchange;
- resolution or separation of diastereoisomers;
- oxidation of sulfide to sulfoxide and/or sulfone;
- oxidation of aldehyde to acid;
- oxidation of alcohol to ketone;
- halogenation or dehalogenation;
- carbamoylation;
- carboxylation;
- introduction of an azido group;
- reduction of an azido to amine;
- reactions of coupling of aromatic or heteroaromatic halides or triflates or of heterocyclic nitrogens with aryl- or heteroarylboronic acids;
- reactions of coupling of aromatic or heteroaromatic halides or triflates with stannyl-containing reagents; hydrogenation of double bonds;

- dihydroxylation of double bonds;
- cyanidation.

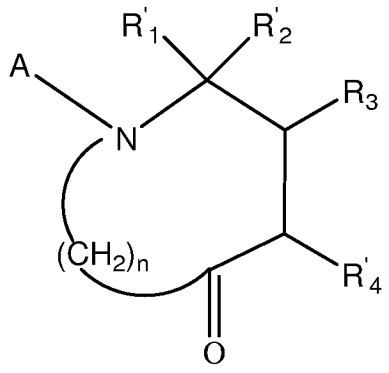
12. (original) The method as claimed in claim 11, wherein the carbonylating agent is selected from the group consisting of phosgene, diphosgene, triphosgene, aryl, aralkyl, alkyl and alkenyl chloroformates, alkyl dicarbonates, carbonyldiimidazole and mixtures thereof.

13. (original) The method as claimed in claim 11, wherein the carbonylation reaction occurs in the presence of a base.

14. (original) The method as claimed in claim 11, wherein, in step b), the base is selected from the group consisting of amines, hydrides, alcoholates, amides and carbonates of alkali or alkaline earth metals.

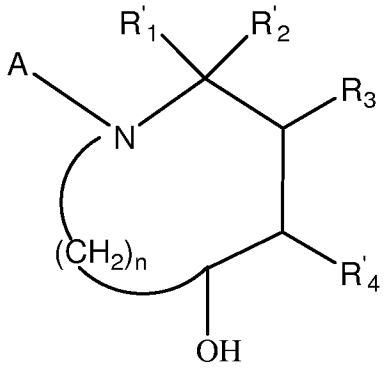
15. (original) The method as claimed in claim 14, wherein the base is an amine.

16. (currently amended) The method as claimed in claim 11, wherein the compound of formula (II) in which ZH is ~~selected from~~ HNR'_8-$(CH_2)_{n''}$- in which n" is 0, ~~and HNR'_8-O-~~, R'_8 being as defined in claim 11, is obtained by a method wherein a compound of formula (IV):



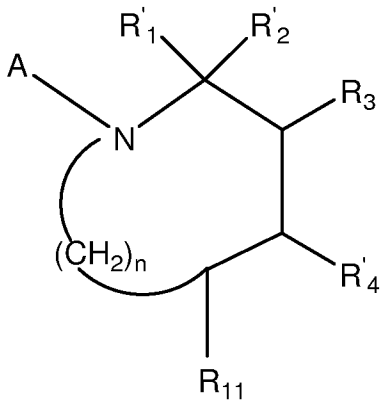
(IV)

in which R'_1, R'_2 and n are as defined in claim 11, R_3 and R'_4 have the values defined in claim 11 or else values which are precursors of the values defined above and A represents hydrogen or a group protecting the nitrogen, is treated with a reducing agent, in order to obtain a compound of formula (V):



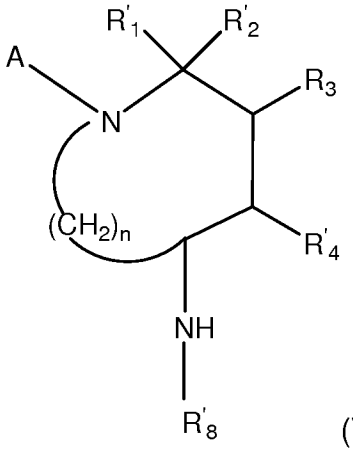
(V)

in which A is as defined above and R'_1, R'_2, R_3, R'_4 and n are as defined in claim 11, and in which, where appropriate, the OH group is replaced with a leaving group, in order to obtain a compound of formula (VI):



(VI)

in which A is as defined above and R'_1, R'_2, R_3, R'_4 and n are as defined in claim 11 and R_{11} represents a leaving group, which compound (VI) is then treated with a compound of formula Z_1H_2 in which Z_1 is a divalent group -NR'$_8$ ~~or -O-NR'$_8$~~, R'$_8$ being as defined in claim 11, in order to obtain a compound of formula (VIII) ~~or (VIII')~~:



(VIII)

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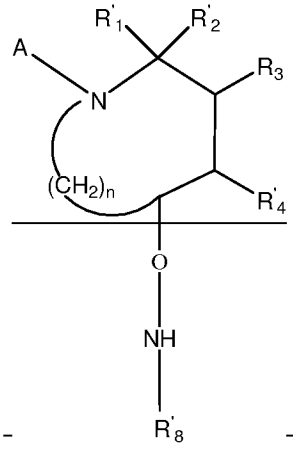
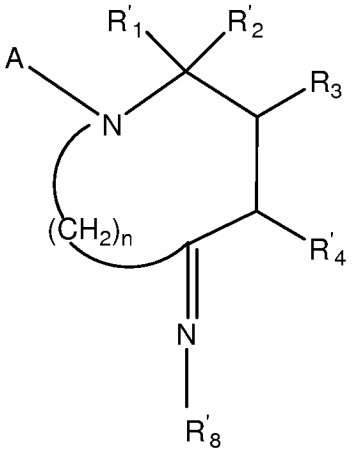


~~(VIII')~~

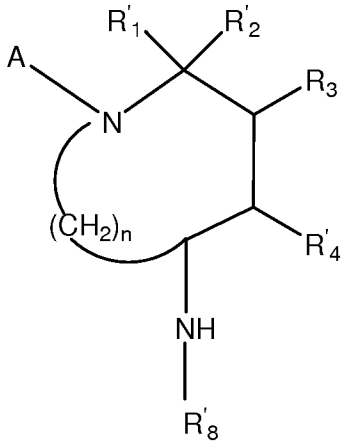
in which A is as defined above and R'_1, R'_2, R_3, R'_4, n and R'$_8$ are as defined in claim 11, and then, where appropriate, with an appropriate agent for deprotecting the nitrogen atom, and wherein, where appropriate, the intermediate of formula (IV), (V), or (VIII) ~~or (VIII')~~ is subjected to one or more of the reactions described in step c) of the method of claim 11, in an appropriate order.

17. (previously presented) The method as claimed in claim 11, wherein the compound of formula (II) in which ZH is NHR'_8-$(CH_2)_{n''}$- in which n'' is 0 is obtained by a method in which a compound of formula (IV) as defined above is treated with a compound of formula $H_2NR'_8$, in order to obtain a compound of formula (VII):



(VII)

in which A represents hydrogen or a group protecting the nitrogen and wherein R'_1, R'_2, R_3, R'_4, n and R'_8 are as defined in claim 11, which compound of formula (VII) is reacted with a reducing agent in order to obtain a compound of formula (VIII):



(VIII)

in which A is as defined above, R'_1, R'_2, R_3, R'_4, n and R'_8 are as defined in claim 11, which compound of formula (VIII) is treated, where appropriate, with an appropriate agent for deprotecting the nitrogen atom, and wherein, where appropriate, the intermediate of formula (VII) or (VIII) is subjected to one or more of the reactions described in step c) of the method of claim 11, in an appropriate order.

18. (original) A method of treating a bacterial infection comprising administering to a mammal in need thereof an antibacterially effective amount of a compound as defined in claim 1, or a salt thereof with a pharmaceutically acceptable acid or base.

19. (original) A method of treating a bacterial infection comprising administering to a mammal in need thereof an antibacterially effective amount of a compound as defined in claim 10, or a salt thereof with a pharmaceutically acceptable acid or base.

20. (original) A pharmaceutical composition containing, as an active ingredient, at least one compound as claimed in claim 1.

21. (original) A pharmaceutical composition containing, as an active ingredient, at least one compound as claimed in claim 10.

22. (currently amended) A pharmaceutical composition containing, as an active ingredient, at least one ~~comprising a~~ compound as defined in claim 1 ~~that is a~~

~~β-lactamase inhibiting agent, wherein said active ingredient further comprises a~~ and at least one β-lactam medicament selected from the group consisting of amoxicillin, ampicillin, azlocillin, mezlocillin, apalcillin, hetacillin, bacampicillin, carbenicillin, sulbenicillin, ticarcillin, piperacillin, mecillinam, pivmecillinam, methicillin, ciclacillin, talampicillin, aspoxicillin, oxacillin, cloxacillin, dicloxacillin, flucloxacillin, nafcillin, pivampicillin, cephalothin, cephaloridin, cefaclor, cefadroxil, cefamandole, cefazolin, cephalexin, cephradine, ceftizoxime, cefoxitin, cephacetril, cefotiam, cefotaxime, cefsulodin, cefoperazone, cefmenoxime, cefmetazole, cephaloglycin, cefonicid, cefodizime, cefpirome, ceftazidime, ceftriaxone, cefpiramide, cefbuperazone, cefozopran, cefepim, cefoselis, cefluprenam, cefuzonam, cefpimizole, cefclidin, cefixime, ceftibuten, cefdinir, cefpodoxime axetil, cefpodoxime proxetil, cefteram pivoxil, cefetamet pivoxil, cefcapene pivoxil, cefditoren pivoxil, cefuroxime, cefuroxime axetil, loracarbacef, latamoxef, imipenem, meropenem, biapenem, panipenem, aztreonam, carumonam, and their salts.

23. (currently amended) A pharmaceutical composition containing, as an active ingredient, at least one ~~a~~ compound as defined in claim 10 ~~that is a β-lactamase inhibiting agent, wherein said active ingredient further comprises a~~ and at least one β-lactam medicament selected from the group consisting of amoxicillin, ampicillin, azlocillin, mezlocillin, apalcillin, hetacillin, bacampicillin, carbenicillin, sulbenicillin, ticarcillin, piperacillin, mecillinam, pivmecillinam, methicillin, ciclacillin, talampicillin, aspoxicillin, oxacillin, cloxacillin, dicloxacillin, flucloxacillin, nafcillin, pivampicillin, cephalothin, cephaloridin, cefaclor, cefadroxil, cefamandole, cefazolin, cephalexin, cephradine, ceftizoxime, cefoxitin, cephacetril, cefotiam, cefotaxime,

cefsulodin, cefoperazone, cefmenoxime, cefmetazole, cephaloglycin, cefonicid, cefodizime, cefpirome, ceftazidime, ceftriaxone, cefpiramide, cefbuperazone, cefozopran, cefepim, cefoselis, cefluprenam, cefuzonam, cefpimizole, cefclidin, cefixime, ceftibuten, cefdinir, cefpodoxime axetil, cefpodoxime proxetil, cefteram pivoxil, cefetamet pivoxil, cefcapene pivoxil, cefditoren pivoxil, cefuroxime, cefuroxime axetil, loracarbacef, latamoxef, imipenem, meropenem, biapenem, panipenem, aztreonam, carumonam, and their salts.

24-39. (cancelled).

40. (currently amended) A method of treating a bacterial infection comprising administering to a mammal in need thereof an effective amount of ~~a β-lactamase inhibiting agent comprising~~ a compound as defined in claim 1, or a salt thereof with a pharmaceutically acceptable acid or base and an antibacterially effective amount of a beta-lactam medicament agent selected from the group consisting of amoxicillin, ampicillin, azlocillin, mezlocillin, apalcillin, hetacillin, bacampicillin, carbenicillin, sulbenicillin, ticarcillin, piperacillin, mecillinam, pivmecillinam, methicillin, ciclacillin, talampicillin, aspoxicillin, oxacillin, cloxacillin, dicloxacillin, flucloxacillin, nafcillin, pivampicillin, cephalothin, cephaloridin, cefaclor, cefadroxil, cefamandole, cefazolin, cephalexin, cephradine, ceftizoxime, cefoxitin, cephacetril, cefotiam, cefotaxime, cefsulodin, cefoperazone, cefmenoxime, cefmetazole, cephaloglycin, cefonicid, cefodizime, cefpirome, ceftazidime, ceftriaxone, cefpiramide, cefbuperazone, cefozopran, cefepim, cefoselis, cefluprenam, cefuzonam, cefpimizole, cefclidin, cefixime, ceftibuten, cefdinir, cefpodoxime axetil, cefpodoxime proxetil, cefteram pivoxil,

cefetamet pivoxil, cefcapene pivoxil, cefditoren pivoxil, cefuroxime, cefuroxime axetil, loracarbacef, latamoxef, imipenem, meropenem, biapenem, panipenem, aztreonam, carumonam, and their salts.

41. (currently amended) A method of treating a bacterial infection comprising administering to a mammal in need thereof an effective amount of ~~a β-lactamase inhibiting agent comprising~~ a compound as defined in claim 10, or a salt thereof with a pharmaceutically acceptable acid or base and an antibacterially effective amount of a beta-lactam medicament agent selected from the group consisting of amoxicillin, ampicillin, azlocillin, mezlocillin, apalcillin, hetacillin, bacampicillin, carbenicillin, sulbenicillin, ticarcillin, piperacillin, mecillinam, pivmecillinam, methicillin, ciclacillin, talampicillin, aspoxicillin, oxacillin, cloxacillin, dicloxacillin, flucloxacillin, nafcillin, pivampicillin, cephalothin, cephaloridin, cefaclor, cefadroxil, cefamandole, cefazolin, cephalexin, cephradine, ceftizoxime, cefoxitin, cephacetril, cefotiam, cefotaxime, cefsulodin, cefoperazone, cefmenoxime, cefmetazole, cephaloglycin, cefonicid, cefodizime, cefpirome, ceftazidime, ceftriaxone, cefpiramide, cefbuperazone, cefozopran, cefepim, cefoselis, cefluprenam, cefuzonam, cefpimizole, cefclidin, cefixime, ceftibuten, cefdinir, cefpodoxime axetil, cefpodoxime proxetil, cefteram pivoxil, cefetamet pivoxil, cefcapene pivoxil, cefditoren pivoxil, cefuroxime, cefuroxime axetil, loracarbacef, latamoxef, imipenem, meropenem, biapenem, panipenem, aztreonam, carumonam, and their salts.